LIBERARY MANAGEMENT SYSTEM

DSA PROJECT

CODE :

```
#include <iostream>
#include<conio.h>
#include<fstream>
using namespace std;
class library
{
	private:
		struct Node
		{
			int id;
			string name;
			string author;
			string publisher;
			Node *next_add;
		};
	public:
		Node *head = NULL;
		void menu();
		void insert();
		void search();
		void update();
		void del();
		void sort();
		void show();
};
int main()
{
```

```
    library obj;
        obj.menu();
}
void library::menu()
{
        p:
        system ("cls");
        int choice;
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n 1.INSERT NEW RECORD";
        cout<<"\n\n 2.SEARCH RECORD";
        cout<<"\n\n 3.UPDATE RECORD";
        cout<<"\n\n 4.DELETE RECORD";
        cout<<"\n\n 5.SHOW ALL RECORD";
        cout<<"\n\n 6.EXIT";
        cout<<"\n\n ENTER YOUR CHOICE : ";
        cin>>choice;
        switch(choice)
        {
           case 1:
                insert();
                break;
           case 2:
                search();
                break;
           case 3:
                update();
                break;
```

```
            case 4:
                del();
                break;
            case 5:
                sort();
                show();
                break;
            case 6:
                exit(0);
            default:
                cout<<"\n\n Invalid choice.. Please try again...";

        }
        getch();
        goto p;
}
void library::insert()
{
        system ("cls");
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
        cout<<"\n\n\t\t\t**********************************";
        Node *new_node = new Node;
        cout<<"\n\n Book ID : ";
        cin>>new_node -> id;
        cout<<"\n\n Name :";
        cin>>new_node -> name;
        cout<<"\n\n Author Name :";
        cin>>new_node -> author;
        cout<<"\n\n Publisher Name :";
        cin>>new_node -> publisher;
```

```
        new_node ->  next_add = NULL;
        if(head == NULL)
        {
           head = new_node;
        }
        else
        {
                Node *ptr = head;
                while(ptr -> next_add != NULL)
                {
                        ptr = ptr-> next_add;
                }
                ptr -> next_add = new_node;
        }
        cout<<"\n\n\t\t\t NEW BOOK INSERTED SUCCESSSFULLY....";
}
void library::search()
{
        system ("cls");
        int t_id,found=0;
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
        cout<<"\n\n\t\t\t**********************************";
        if(head == NULL)
        {
                cout<<"\n\n LINKED LIST IS EMPTY...";
        }
        else
        {
                cout<<"\n\n BOOK ID : ";
```

```
                cin>>t_id;
                Node *ptr = head;
                while(ptr !=NULL)
                {
                        if(t_id == ptr ->id)
                        {
                                system ("cls");
                   cout<<"\n\n\t\t\t**********************************";
                        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
                        cout<<"\n\n\t\t\t**********************************";
                                cout<<"\n\n Book ID : "<<ptr-> id;
                                cout<<"\n\n Book Namae : "<<ptr-> name;
                                cout<<"\n\n Author Name : "<<ptr-> author;
                                cout<<"\n\n Publisher Nme : "<<ptr-> publisher ;
                                found++;
                        }
                        ptr = ptr -> next_add;
                }
                if (found == 0)
                {
                        cout<<"\n\n BOoK ID IS INVALID...: ";
                }
        }
}
void library::update()
{
        system ("cls");
        int t_id,found=0;
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
```

```
cout<<"\n\n\t\t\t**********************************";
if(head == NULL)
{
	cout<<"\n\n LINKED LIST IS EMPTY...";
}
else
{
	cout<<"\n\n BOOK ID : ";
	cin>>t_id;
	Node *ptr = head;
	while(ptr !=NULL)
	{
		if(t_id == ptr ->id)
		{
			system ("cls");
	   cout<<"\n\n\t\t\t**********************************";
		cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
		cout<<"\n\n\t\t\t**********************************";
			cout<<"\n\n Book ID : ";
			cin>>ptr-> id;
			cout<<"\n\n Book Nmae : ";
			cin>>ptr-> name;
			cout<<"\n\n Author Name : ";
			cin>>ptr-> author;
			cout<<"\n\n Publisher Name : ";
			cin>>ptr-> publisher ;
			found++;
			cout<<"\n\n\t\t\t UPDATED BOOK SUCCESSFULLY : ";
		}
		ptr = ptr -> next_add;
```

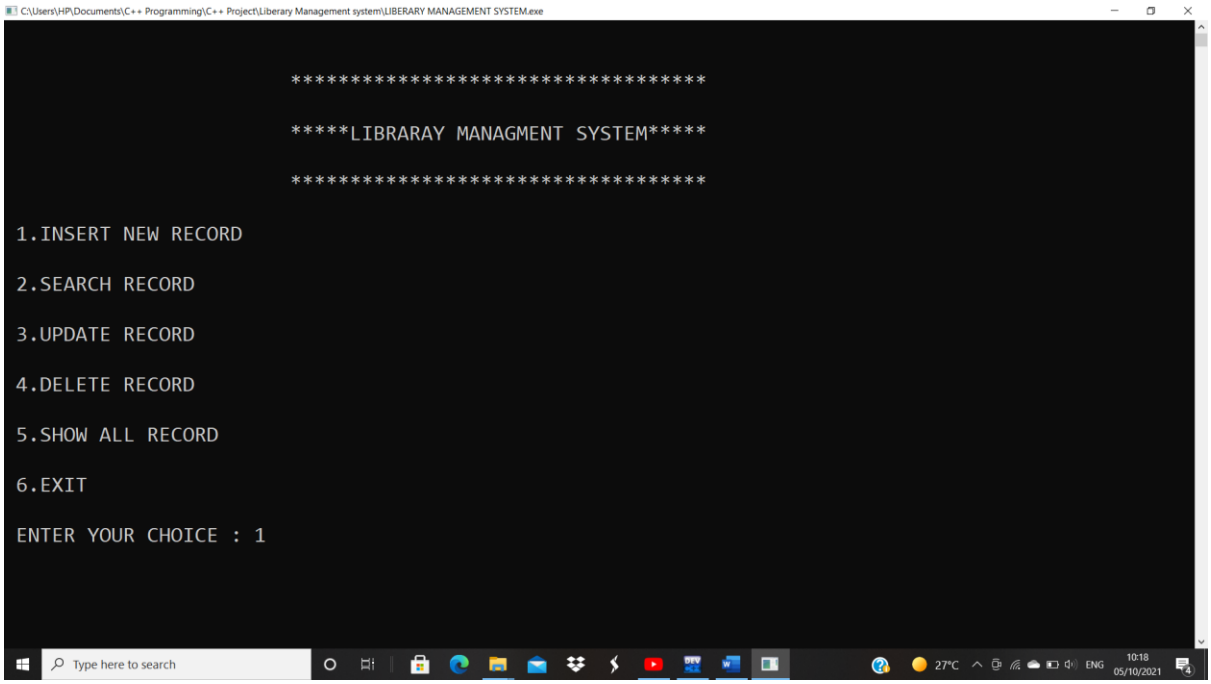
```
                }
                if (found == 0)
                {
                        cout<<"\n\n BOoK ID IS INVALID...: ";
                }
        }
}
void library::del()
{
        system ("cls");
        int t_id,found=0;
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
        cout<<"\n\n\t\t\t**********************************";
        if(head == NULL)
        {
                cout<<"\n\n LINKED LIST IS EMPTY...";
        }
        else
        {
                cout<<"\n\n Book ID : ";
                cin>>t_id;
                if(t_id == head -> id)
                {
                        Node *ptr =head;
                        head = head ->next_add;
                        delete ptr;
                        cout<<"\n\n DELETED BOOK SUCCESSFULLY...";
                        found++;
                }
```

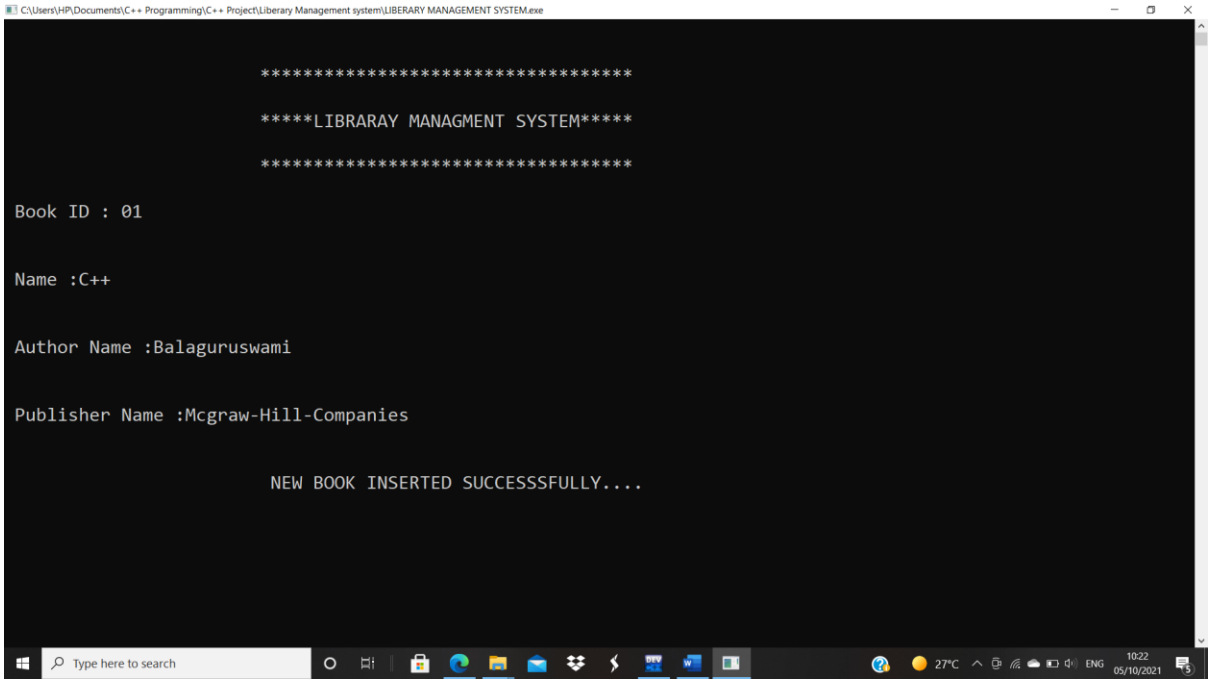
```
		else
		{
			Node *pre = head;
			Node *ptr =head;
			while(ptr != NULL)
			{
				if(t_id == ptr -> id)
				{
					pre -> next_add = ptr -> next_add;
					delete ptr;
					cout<<"\n\n DELETED BOOK SUCCESSFULLY...";
					found++;
					break;
				}
				pre =ptr;
				ptr= ptr -> next_add;
			}
		}
		if(found ==0)
		{
			cout<<"\n\n Book ID is invalid...";
		}
	}
}
void library::sort()
{
	if(head == NULL)
	{
		system ("cls");
		cout<<"\n\n\t\t\t**********************************";
```

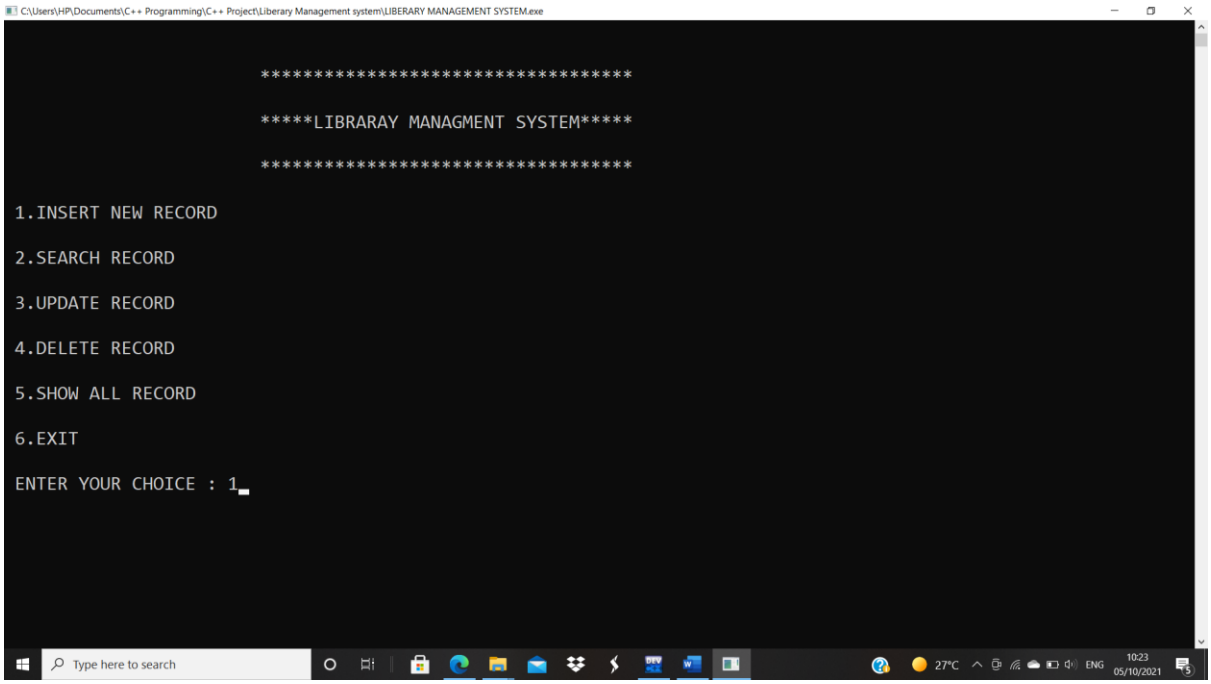
```
    cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
    cout<<"\n\n\t\t\t************************************";
        cout<<"\n\n LINKED LIST IS EMPTY...";
        getch();
        menu();
}
int count=0,t_id;
string t_name,t_author,t_publisher;
Node *ptr = head;
while(ptr != NULL)
{
        count++;
        ptr = ptr -> next_add;
}
for(int i=1;i<=count;i++)
{
        Node *ptr = head;
        for(int j=1;j<count;j++)
        {
                if(ptr -> id > ptr ->next_add -> id)
                {
                        //save data into temporary variables
                        t_id     = ptr->id;
                        t_name   = ptr->name;
                        t_author = ptr->author;
                        t_author = ptr->publisher;
                        //save dta into current node
                        ptr -> id = ptr -> next_add -> id;
                        ptr -> name = ptr -> next_add -> name;
                        ptr -> author = ptr -> next_add -> author;
```

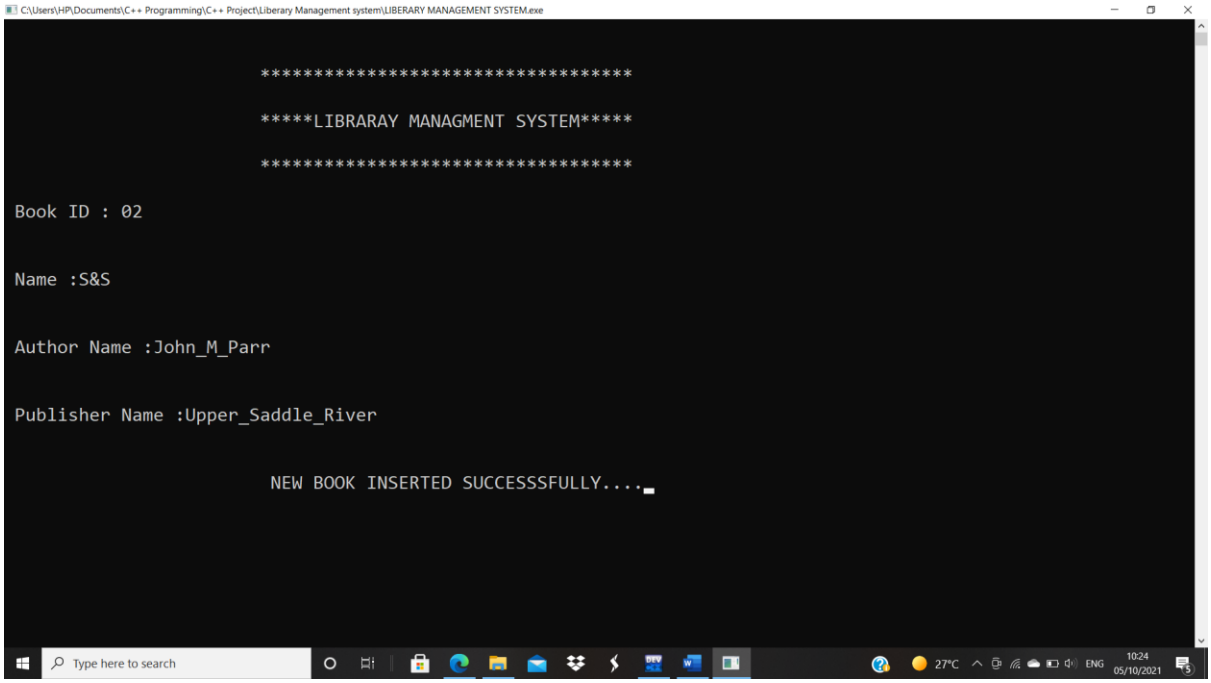
```
                                ptr -> publisher = ptr -> next_add -> publisher;
                                //save data into next node
                                ptr -> next_add -> id = t_id;
                                ptr -> next_add -> name = t_name;
                                ptr -> next_add -> author = t_author;
                                ptr -> next_add -> publisher = t_publisher;
                        }
                        ptr = ptr ->next_add;
                }
        }
}
void library::show()
{
        system ("cls");
        cout<<"\n\n\t\t\t**********************************";
        cout<<"\n\n\t\t\t*****LIBRARAY MANAGMENT SYSTEM*****";
        cout<<"\n\n\t\t\t**********************************";
        Node *ptr = head;
        while(ptr !=NULL)
        {
                cout<<"\n\n Book ID : "<<ptr-> id;
                cout<<"\n\n Book Nmae : "<<ptr-> name;
                cout<<"\n\n Author Name : "<<ptr-> author;
                cout<<"\n\n Publisher Nme : "<<ptr-> publisher ;
                cout<<"\n\n\n**********************************";
                ptr = ptr -> next_add;
        }
}
```

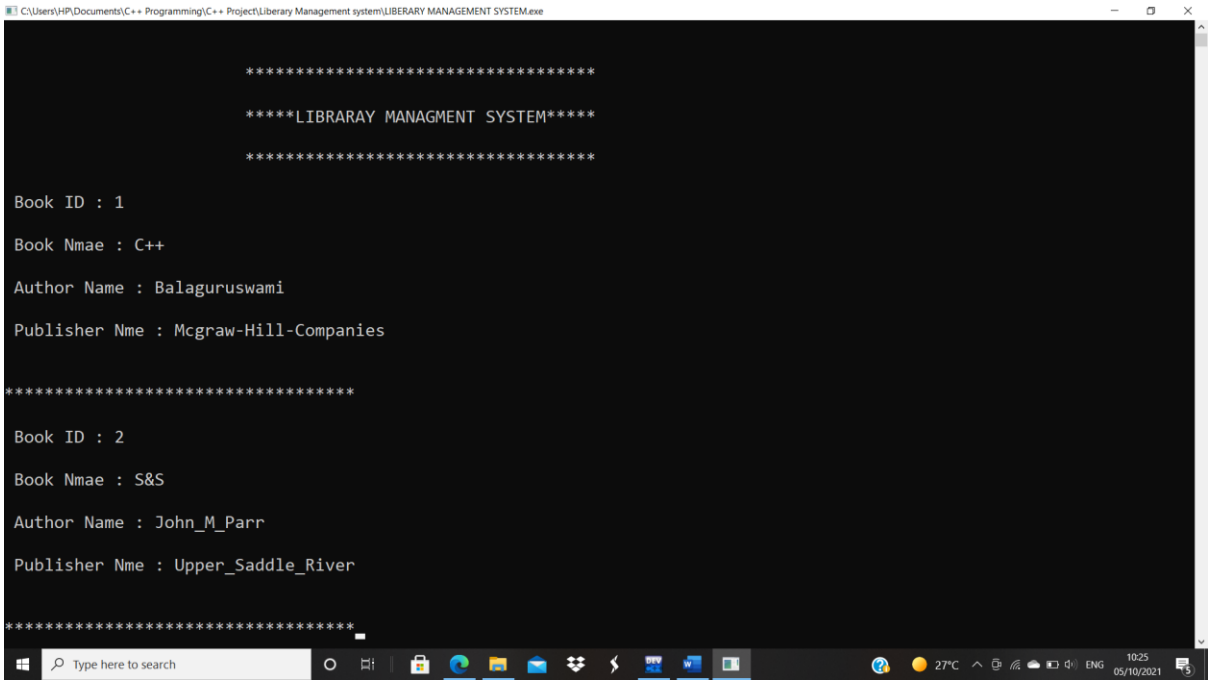
Output :

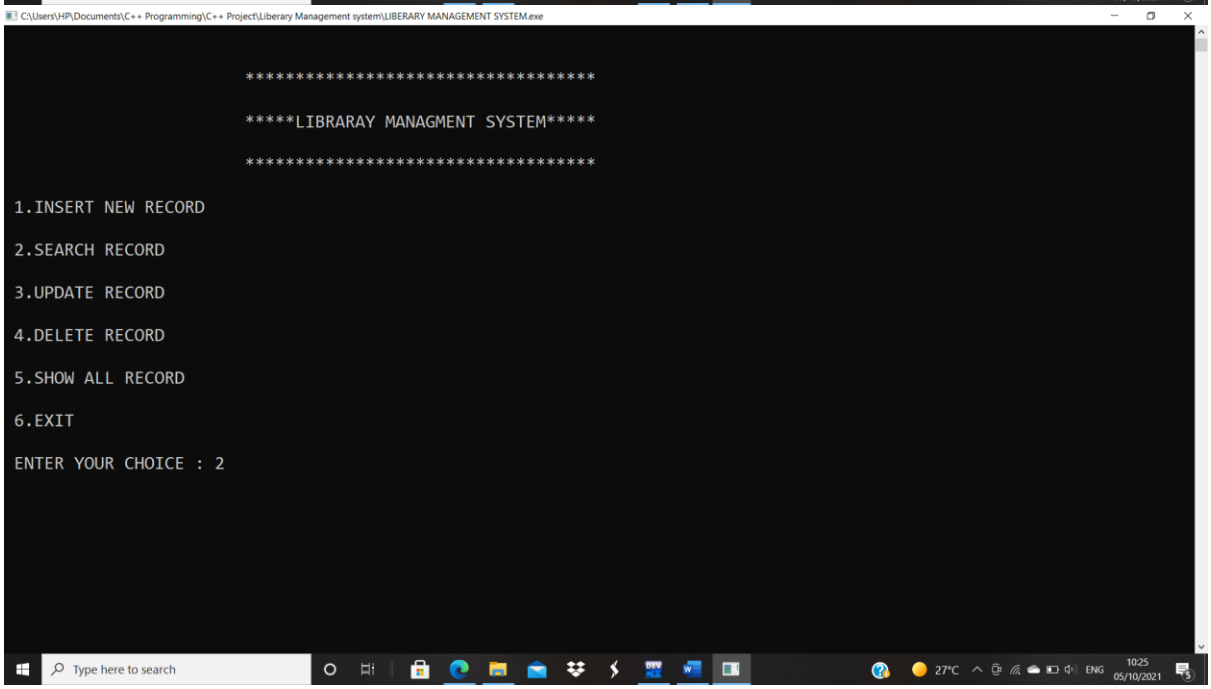

C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
1.INSERT NEW RECORD
2.SEARCH RECORD
3.UPDATE RECORD
4.DELETE RECORD
5.SHOW ALL RECORD
6.EXIT
ENTER YOUR CHOICE : 1
Type here to search
27°C
ENG
10:18
05/10/2021

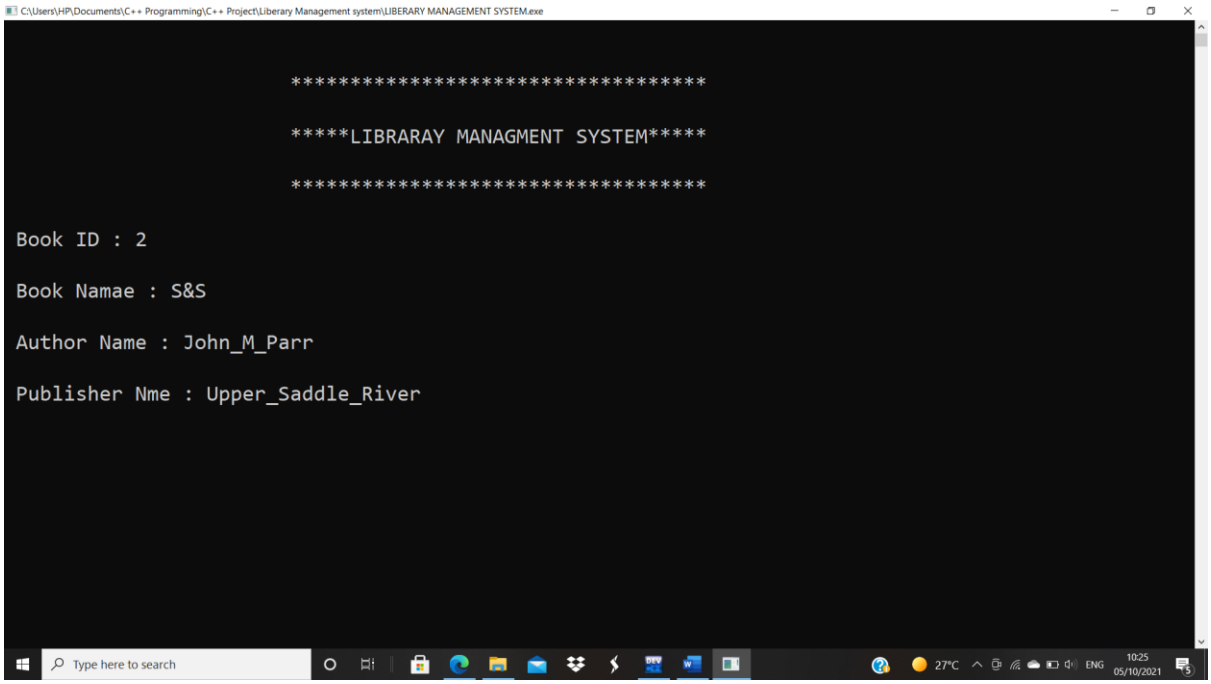

C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
Book ID : 01
Name :C++
Author Name :Balaguruswami
Publisher Name :Mcgraw-Hill-Companies
NEW BOOK INSERTED SUCCESSSFULLY....
Type here to search
27°C
ENG
10:22
05/10/2021

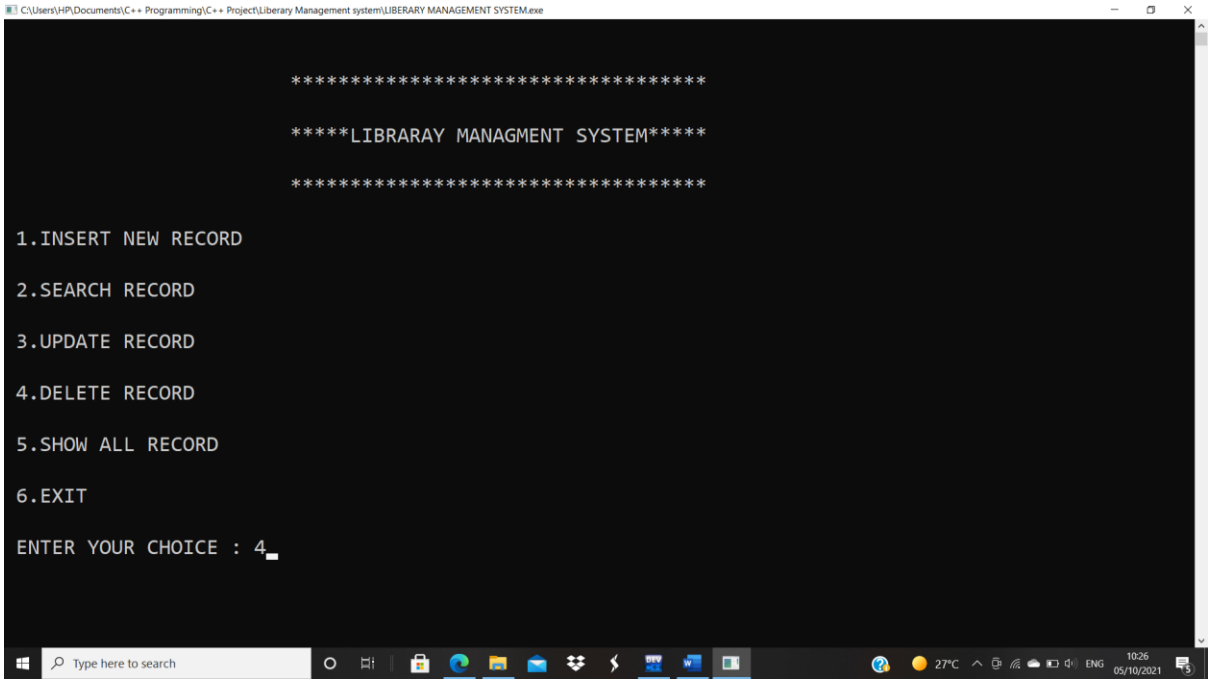

C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
1.INSERT NEW RECORD
2.SEARCH RECORD
3.UPDATE RECORD
4.DELETE RECORD
5.SHOW ALL RECORD
6.EXIT
ENTER YOUR CHOICE : 1
Type here to search
27°C
ENG
10:23
05/10/2021

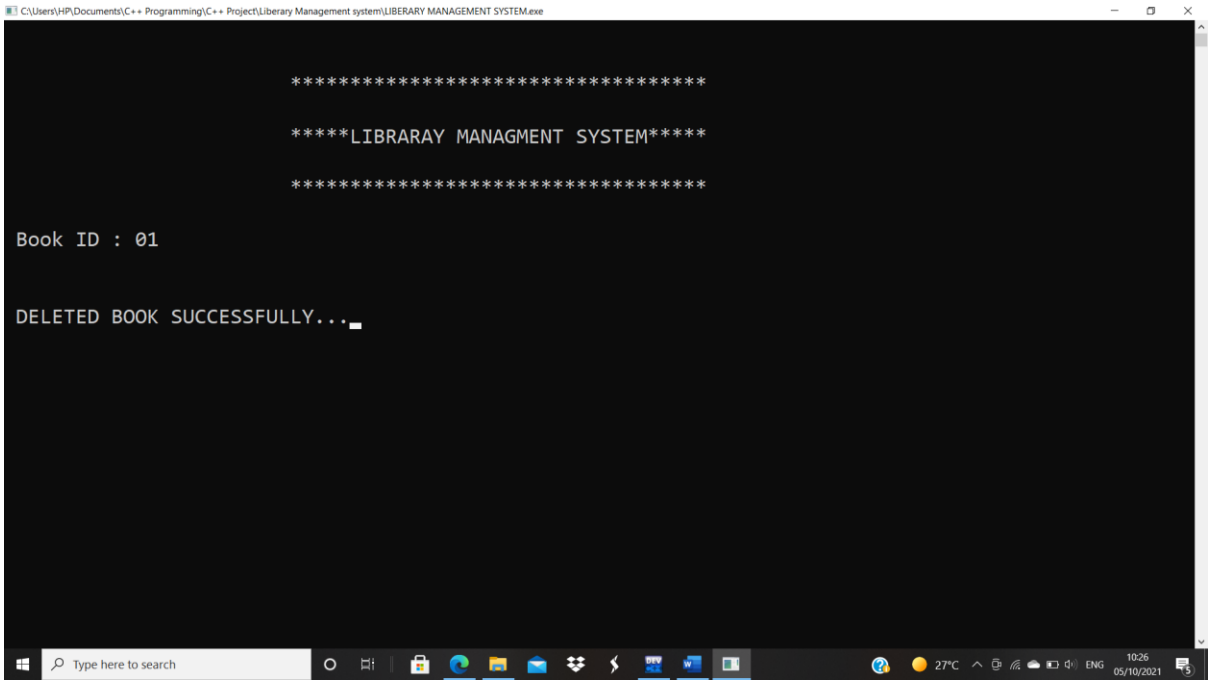

C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
Book ID : 02
Name :S&S
Author Name :John_M_Parr
Publisher Name :Upper_Saddle_River
NEW BOOK INSERTED SUCCESSSFULLY....
Type here to search
27°C
ENG
10:24
05/10/2021

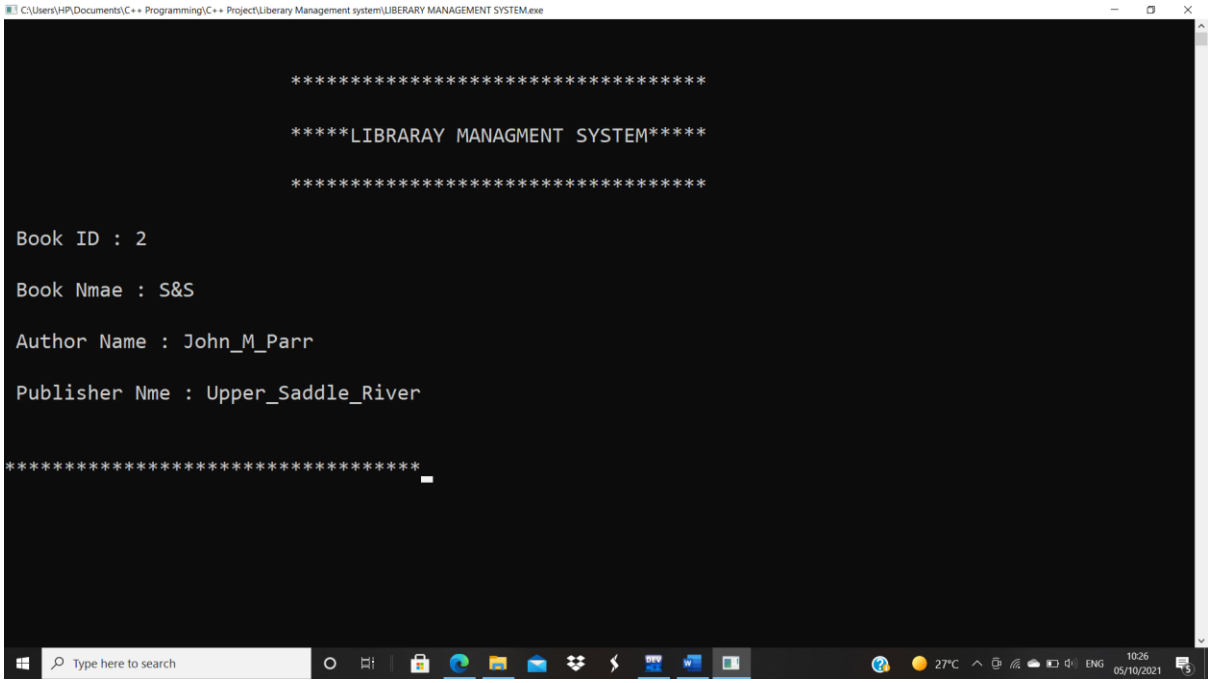

C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
Book ID : 1
Book Nmae : C++
Author Name : Balaguruswami
Publisher Nme : Mcgraw-Hill-Companies
****
Book ID : 2
Book Nmae : S&S
Author Name : John_M_Parr
Publisher Nme : Upper_Saddle_River
****
Type here to search
27°C
ENG
10:25
05/10/2021


C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
1.INSERT NEW RECORD
2.SEARCH RECORD
3.UPDATE RECORD
4.DELETE RECORD
5.SHOW ALL RECORD
6.EXIT
ENTER YOUR CHOICE : 2
Type here to search
27°C
ENG
10:25
05/10/2021


C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
Book ID : 2
Book Namae : S&S
Author Name : John_M_Parr
Publisher Nme : Upper_Saddle_River
Type here to search
27°C
ENG
10:25
05/10/2021


C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
1.INSERT NEW RECORD
2.SEARCH RECORD
3.UPDATE RECORD
4.DELETE RECORD
5.SHOW ALL RECORD
6.EXIT
ENTER YOUR CHOICE : 4
Type here to search
27°C
ENG
10:26
05/10/2021


C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
Book ID : 01
DELETED BOOK SUCCESSFULLY...
Type here to search
27°C
ENG
10:26
05/10/2021


C:\Users\HP\Documents\C++ Programming\C++ Project\Liberary Management system\LIBERARY MANAGEMENT SYSTEM.exe
****
*****LIBRARAY MANAGMENT SYSTEM*****
****
Book ID : 2
Book Nmae : S&S
Author Name : John_M_Parr
Publisher Nme : Upper_Saddle_River
****
Type here to search
27°C
ENG
10:26
05/10/2021